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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/609,513 07/03/00 TSAI

T 47753.C2

EXAMINER

000408 IM22/0619
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P O BOX 1871
KNOXVILLE TN 37901-1871

ALVIT M
ART UNIT

PAPER NUMBER

5

1731
DATE MAILED:

06/19/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/609,513

Applicant(s)

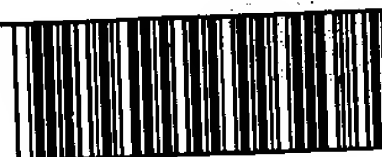
TSAI

Examiner

Steve Alvo

Art Unit

1731



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct 3, 2000
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 10, 11, 13-17, 19-26, 29-37, 39-42, and 44-48 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10, 11, 13-17, 19-26, 29-37, 39-42, and 44-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 10, 11, 13-17, 19-26, 29, 31, 32, 36, 37, 39-42, 44 and 46 are rejected under 35 U.S.C. 103(a) as obvious over EP 622 491 in view of DEVENYNS et al ("Optimal Use of Hydrogen Peroxide To Design Low AOX ECF Sequences") or NONNI or SERGEYEV et al with or without SINGH ("The Bleaching of Pulp", pages 126-127).

EP 622 491 teaches in Example VIII) bleaching digested kraft (sulphate) pulp with a chelating agent at a pH of 1.8 to 2.0 for 25 minutes at 45 °C during a chlorine dioxide bleaching stage (DQ) and then bleaching the pulp in a final bleaching stage (PO) with hydrogen peroxide (P) to provide a pulp with high strength (e.g. high viscosity) and viscosity (TABLE III), high brightness (page 2, lines 38-42) and reduce the level of chlorine containing compounds (page 10, lines 15-17). See EP 622 491, page 4, lines 12-13 and 30-35, and lines 51-56 for using a pH up to 5.0 in a combined chelating and delignifying stage, e.g. the (DQ-stage of Example VIII) for using a pH of 1.5 to 5.0 in the acid stage and a pH of 1.5 to 13 during the chelating stage. Example VIII uses 1.5 kg/ton dry pulp chelating agent. It would have been obvious to maintain the pH of EP 622 491 at a pH of 1.5 to 5.0 during the DQ-stage of Example VIII as such a pH range is

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taught by EP 622 491 for a combined D and Q-stage (page 4, lines 12-13 lines 51-56). Claims 29 and 44 are rejected as EP 622 491 teaches using Ca and Mg stabilizers in the peroxide stage. It would have been obvious to further increase the brightness of EP 622 491 by using two chlorine dioxide stages separated by an alkaline extraction as such a sequence is well known in the art to be more efficient and provide better brightness than a single D-stage. Such a sequence, e.g. DEDQ is taught by DEVENYNS et al prior to a P bleaching stage. It would have been obvious to one of ordinary skill in the art to further improve the bleaching of EP 622 491 by using the DE stages of DEVENYNS et al before the (DQ)P stage of EP 622 491 rather than the single D-stage. It would have been obvious to the routineer that a DE(DQ)P sequence would provide increased bleaching compared to the single chlorine dioxide sequence ((DQ)P of EP 622 491. Or NONNI teaches the alternativeness of bleaching oxygen delignified pulp with D or DED(column 4, line 41). It would have been obvious to substitute the DED bleach sequence of NONNI for then D-stage of EP 622 491 as their alternativeness is taught by NONNI. It would have been obvious to one of ordinary skill in the art to improve the extraction of DEVENYNS et al by adding an oxidizing agent as taught by NONNI. (Or SERGEYEV teaches) Or obvious to use a chelating agent in the first D-stage of EP 622 491 as taught by SERGEYEV et al to increase brightness and strength. It would have been obvious to add the chelating agent to both D-stages of EP 622 491 as SERGEYEV et al integrating Q and D stages prior to a P-stage. This would apply to both D-stages of EP 622 491. It would have been obvious to add o and/or p during the extraction stage as such is taught by SERGEYEV et al. If necessary it would have been especially obvious to use

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a two D-stages separated by extraction rather than a the single D-stage of EP 622 491 as the use of two chlorine dioxide stages (DED) is known to give higher brightness without significant strength loss than a single stage as taught by the SINGH text, e.g. page 127, 10-13. The use of oxygen and peroxide are well known in the art to improve the alkaline extraction of pulp, see NONNI.

Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 622 491 in view of DEVENYNS et al or NONNI with or without SINGH as applied to claim 36 above, and further in view of PROUGH.

It would have been obvious to one of ordinary skill in the art that the chelating agent of EP 622 491 could be added during a wash stage as such addition of a chelating agent would have been obvious from the teachings of PROUGH.

Claims 30, 33-35, 45 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 622 491 in view of DEVENYNS et al or NONNI with or without SINGH as applied to claim 1 above, and further in view of WO 95/27100.

95/27100 teaches a (DQ)P and (DQ)PDP bleach sequences similar to the sequences of EP 622 491 and DEVENYNS et al and teaches that the chelating agent can be added to the first chlorine dioxide stage (Table 1) and Example 3 . It would have been obvious to add the chelating agent in the first chlorine dioxide stage in addition to the second chlorine dioxide stage of DEVENYNS et al to obtain the additional improvement in brightness and pulp strength taught by 95/27100.

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Any inquiry concerning this communication or earlier communications from the **primary examiner** should be directed to **Steve Alvo** whose telephone number is (703) 308-2048. The Examiner can normally be reached on Monday - Friday from 6:00 AM - 2:30 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stanley Silverman, can be reached on 703-308-3837.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Group receptionist** whose telephone number is (703) 308-0661.

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STEVE ALVO
PRIMARY EXAMINER
ART UNIT 1731

MSA
June 15, 2001